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| EXAMINER | |
|---|---|
| EDWARDS, PATRICK L | |
| **ART UNIT** | **PAPER NUMBER** |
| 2621 | |

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/870,984 | NEEDHAM ET AL. | |
| | Examiner | Art Unit | |
| | Patrick L Edwards | 2621 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-29 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 20, the term "operational parameter" lacks antecedent basis. Claim 20 depends on claim 14, which in turn depends on claim 12. None of these claims make any reference to an "operational parameter".

### *Claim Rejections - 35 USC § 102*

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 5 and 6 are are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (USPN 6,463,175).

With regard to claim 5, Lee discloses an automatic feature-based correction mechanism for generating a corrected image based on an input image (col. 3 lines 54-56). The image enhancement disclosed in Lee is analogous to image correction as recited in the claim.

Lee further discloses that the automatic feature-based image correction mechanism automatically detects a predetermined feature from the input image (col. 5 lines 16-19) and corrects the detected feature according to a correction specification (col. 5 lines 22-40). While failing to explicitly recite a "correction specification", Lee does disclose that the feature correction is based on the feature type (col. 10 lines 17-28). This qualifies as correcting the feature according to a correction specification as recited in the claim (see paragraphs [0024] and [0026] of the applicant's specification). Consequently, all of the limitations of the claim are met.

With regard to claim 6, Lee discloses that the detected features are corrected based on feature type (col. 10 lines 17-28), and correction parameters that define a correction operation (col. 9 lines 10-34). The morphological opening and closing operations and the structuring elements which constitute them as disclosed in Lee are analogous to correction parameters as recited in the claim, per the applicant's specification (see paragraph [0024] of the applicant's specification).

4. Claims 8, 9, 10, 21, 22 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (USPN 6,463,175).

With regard to claim 8, Lee discloses detecting one or more image features from the image (col. 5 lines 16-19). The feature extraction disclosed in Lee is analogous to the feature detection recited in the claim.

Lee further discloses correcting the image according to a correction specification based upon the one or more image features (col. 5 lines 22-40). While failing to explicitly recite a "correction specification", Lee does disclose that the feature correction is based on the feature type (col. 10 lines 17-28). This qualifies as correcting the feature according to a correction specification as recited in the claim (see paragraphs [0024] and [0026] of the applicant's specification). Consequently, all of the limitations of the claim are taught by the Lee reference.

With regard to claim 9, Lee further discloses generating a feature description for the image features and correcting the image according to the feature description (col. 9 line 65 – col. 10 line 28). The Lee reference teaches correcting the image according to the size, shape, location and type of features. This qualifies as correcting the image according to the feature description as recited in the claim (see applicant's specification paragraph [0026]).

With regard to claim 10, Lee further discloses that the detected features are corrected based on feature type (col. 10 lines 17-28), and correction parameters that define a correction operation (col. 9 lines 10-34). The morphological opening and closing operations and the structuring elements which constitute them as disclosed in Lee are analogous to correction parameters as recited in the claim, per the applicant's specification (see paragraph [0024] of the applicant's specification).

With regard to claims 21, 22 and 23, a computer-readable recording medium that stores a program which causes the computer to execute the steps of a method is essential if the image processing method disclosed in Lee is to function. Therefore, a computer-readable recording medium is inherent in the teachings of Lee.

5. Claims 1, 2, 3, 4, 12, 14, 20, 25, 26 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee (USPN 6,463,175).

With regard to claim 1, which is representative of claim 12, Lee discloses an automatic feature detection unit to detect a feature from an input image according to a correction specification (col. 5 lines 44-65). Lee discloses that the images are extracted based on the feature type. This qualifies as detecting a feature according to a correction specification as recited in the claim, per the applicant's specification (applicant's specification paragraph [0024]).

Lee further discloses that the automatic feature detection unit generates a feature description for the detected feature (col. 5 lines 44-65 and col. 6 lines 35-40). While failing to explicitly recite generating a "feature description", Lee does disclose determining the size, shape, location, feature type and statistical properties for detected features. The determination of these visual properties of the detected features as disclosed in Lee qualifies as the generation of a feature description recited in the claim. Consequently, Lee teaches this limitation of the claim.

Lee further discloses a feature based correction unit to correct the input image based on the feature description to generate a corrected image (col. 5 lines 22-40 in conjunction with Figure 2 and col. 9 line 65 – col. 11 line 25). The combination of the structure guided image feature enhancement 206, the mask generation 208 and the weight generation 216 as disclosed in Lee is analogous to the feature-based correction unit recited in the claim. The Lee reference teaches correcting the image according to the size, shape, location, feature type and statistical properties. This qualifies as correcting the image according to the feature description recited in the claim, per applicant's specification (see applicant's specification paragraph [0026]).

Lee further discloses that the aforesaid feature-based correction unit corrects the input image on the basis of the correction specification (col. 5 lines 22-40). While failing to explicitly recite a "correction specification", Lee does disclose that the feature correction is based on the feature type (col. 10 lines 17-28). This qualifies as correcting the feature according to a correction specification as recited in the claim (see paragraphs [0024] and [0026] of the applicant's specification). Consequently, all of the limitations of the claim are taught by the Lee reference.

With regard to claim 2, Lee further discloses that the correction specification includes a feature type that defines the feature to be detected and corrected (col. 5 lines 46-50). Lee further discloses a weight applied to the feature (col. 11 lines 8-25) and a correction parameter for the feature (col. 9 lines 10-64). Althought Lee fails to explicitly recite that the feature weight and correction parameter are a part of a "correction specification", all of the limitations of the claim are still taught by the Lee reference.

With regard to claim 3, Lee further discloses that the feature based correction unit corrects only the detected feature in the input image (col. 9 lines 10-14).

With regard to claim 4, which is representative of claim 13, all of the limitations of the claim have been addressed in the above argument with respect to claim 1. No further arguments will be provided.

With regard to claim 14, Lee further discloses setting up the correction specification, which includes determining a feature type for the feature (col. 5 lines 46-50) and specifying a correction parameter for the feature, the correction parameter being determined according to the corresponding feature type of the feature (col. 9 line 65 – col. 10 line 3). The structuring elements disclosed in Lee qualify as correction parameters as recited in the claim.

With regard to claim 20, Lee further discloses assigning a weight to the feature, wherein the weight is used to control the operation parameter during the correction of the input image (col. 11 lines 8-25)

With regard to claims 25, 26 and 27 a computer-readable recording medium that stores a program which causes the computer to execute the steps of a method is essential if the image processing method disclosed in Lee is to function. Therefore, a computer-readable recording medium is inherent in the teachings of Lee.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee as applied to claim 6 above, and further in view of Murakami (USPN 6,026,181). The arguments as to the relevance of Lee as applied in paragraph 5 above are incorporated herein.

With regard to claim 7, Lee discloses a correction operation, but fails to expressly disclose that the correction operation is one of contrast correction or brightness correction. Murakami, however, discloses a density correction means which corrects density in accordance with extracted features (Murakami col. 2 lines 15-30). The density correction disclosed in Murakami is analogous to the contrast correction recited in the claim.

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Lee's image feature correction device by making the correction operation a contrast correction as taught by Murakami. Such a modification would have allowed for appropriate contrast correction for different types of image features. This would have made for output image data which could clearly represent image areas (col. 7 lines 21-27).

8. Claims 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee as applied to claims 10 and 23 above, and further in view of Murakami (USPN 6,026,181). The arguments as to the relevance of Lee as applied in paragraph 5 above are incorporated herein.

With regard to claim 11, Lee discloses a correction operation, but fails to expressly disclose that the correction operation is one of contrast correction or brightness correction. Murakami, however, discloses a density correction means which corrects density in accordance with extracted features (Murakami col. 2 lines 15-30). The density correction disclosed in Murakami is analogous to the contrast correction recited in the claim.

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Lee's image feature correction device by making the correction operation a contrast correction as taught by Murakami. Such a modification would have allowed for appropriate contrast correction for different types of image features. This would have made for output image data which could clearly represent image areas (col. 7 lines 21-27).

With regard to claim 24, a computer-readable recording medium that stores a program which causes the computer to execute the steps of a method is essential if the image processing method disclosed in the combination of Lee and Murakami is to function. Therefore, a computer-readable recording medium is inherent in the teachings of Lee and Murakami.

9. Claims 15, 16, 17, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee as applied to claim 14 above, and further in view of Bortolussi et al. (USPN 6,292,575). The arguments as to the relevance of Lee as applied in paragraph 5 above are incorporated herein.

With regard to claim 15, Lee fails to expressly disclose a human face as a feature type. Bortolussi, however, discloses detecting a feature which includes a human face (Bortolussi col. 1 line 65 – col. 2 line 10). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Lee's feature correction method in order to detect and subsequently correct the feature of a human face. Such a modification would have allowed for the application of an image feature correction and detection method to be applied to images which comprise at least one human face.

With regard to claim 16, Lee further discloses that the correction parameters include an operation definition (col. 10 lines 17-28). Lee discloses determining the correction to be performed on the image. Again, Lee fails to explicitly recite an 'operation definition', and also fails to explicitly recite that said 'operation definition' is a 'correction parameter'. However, Lee does disclose determining the correction to be performed, which qualifies as the 'operational definition' recited in the claim, per the applicant's specification (applicant's specification paragraph [0031]). So, regardless of how these operations are named or organized in the claims, they are indeed anticipated by the Lee reference.

With regard to claim 17, Lee further discloses correcting the feature (Lee col. 9 lines 10-15).

With regard to claims 28 and 29, a computer-readable recording medium that stores a program which causes the computer to execute the steps of a method is essential if the image processing method disclosed in the combination of Lee and Bortolussi is to function. Therefore, a computer-readable recording medium is inherent in these teachings.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee and Bortolussi as applied to claim 16 above, and further in view of Murakami (USPN 6,026,181). The arguments as to the relevance of Lee and Bortolussi as applied in paragraph 9 above are incorporated herein.

With regard to claim 18, the combination of Lee and Bortolussi discloses a correction operation, but fails to expressly disclose that the correction operation is one of contrast correction or brightness correction. Murakami, however, discloses a density correction means which corrects density in accordance with extracted features (Murakami col. 2 lines 15-30). The density correction disclosed in Murakami is analogous to the contrast correction recited in the claim.

It would have been obvious to one reasonably skilled in the art at the time of the invention to modify the combination of Lee and Bortolussi's image feature correction device by making the correction operation a contrast correction as taught by Murakami. Such a modification would have allowed for appropriate contrast correction for

different types of image features. This would have made for output image data which could clearly represent image areas (col. 7 lines 21-27).

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Lee and Bortolussi as applied to claim 16 above, and further in view of Murakawa (USPN 6,463,432). The arguments as to the relevance of Lee and Bortolussi as applied in paragraph 9 above are incorporated herein.

With regard to claim 19 the aforesaid combination fails to expressly disclose that the operation parameters include intensity dynamic range. Murakawa, however, discloses dynamic range as an operation parameter (Murakawa col. 8 lines 1-10). It would have been obvious to one reasonably skilled in the art at the time of the invention to modify Lee and Bortolussi's feature correction method by using the dynamic range as an operation parameter as taught by Murakawa. Such a modification would have allowed for the features to be corrected according to the full dynamic range and consequently would have made for an image with improved contrast.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L Edwards whose telephone number is (703) 305-6301. The examiner can normally be reached on 8:30am - 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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